MX INTERCONTINENTAL BALLISTIC MISSILE PROGRAM

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ISSUE DEFINITION

The MX Intercontinental Ballistic Missile (ICBM) is designed to be the most lethal strategic ballistic missile in the world. It is being developed by the U.S. Air Force to augment the capabilities of the presently deployed ICBM force, which together with Submarine Launched Ballistic Missiles (SLBMs) and manned strategic bomber aircraft form the triad of U.S. strategic nuclear offensive forces. On June 7, 1979, President Carter announced his decision to proceed with full-scale development of a 192,000-lb. MX, the largest design proposed.

MX is also intended to be much more survivable than the fixed-silo-based Minuteman and Titan ICBMs currently deployed. Since survivability depends on how the missile is based, the U.S. has searched for more than a decade for a survivable yet politically acceptable basing mode for MX. On Sept. 7, 1979, President Carter announced plans to deploy MX in a "shell game" system of multiple protective structures (MPS). On Oct. 2, 1981, President Reagan announced his strategic program. He recommended rejecting MPS basing. Instead, he recommended basing MX initially in superhard silos as an interim measure beginning in 1986. The U.S. would also study three basing modes that offer the prospect of long-term survivability for MX: antiballistic missile defense, continuous airborne patrol, and deep underground basing. By 1984, the U.S. would select one or more of these modes for deployment.

The debate over the MX program focuses on need, cost, lethality, basing mode, arms control implications, and alternatives. This issue brief concentrates on the MX missile and its strategic implications. Other aspects are covered in CRS Issue Brief 81165, The MX Basing Debate: The Reagan Plan and Alternatives and Mini Brief 81254, The Reagan Plan for U.S. Strategic Forces: Issues for Congress.

BACKGROUND AND POLICY ANALYSIS

EARLY HISTORY

MX technology was generated by the Advanced ICBM Technology Program, which, as originally proposed, was to investigate methods to extend the life and increase the capabilities of the Minuteman ICBMs. However, in 1971 the Strategic Air Command (SAC) documented the requirements for an advanced ICBM, and an advanced development program for the MX began in late 1973 as part of the Advanced ICBM Technology Program. (Advanced development is the stage of research and development (R&D) preceding full-scale engineering development, which is the last R&D stage before a production decision is made.)

In planning future ICBM force effectiveness, SAC envisioned three separate but complementary requirements for the MX: quantity and quality of its warheads; continued ICBM force survivability; and maintenance of strategic superiority, or at least "rough equivalence," with respect to the Soviet strategic forces.

The design specifications called for a large ICBM possessing the following

qualities: large throw-weight (to partially correct the asymmetry in throw-weight when compared to Soviet ICBMs); high survivability (mobile, and hardened to sustain shock and electromagnetic pulse (EMP) caused by enemy attack on its launch sites); high accuracy (to enhance the lethality of its nuclear warheads against hard targets); and more multiple independently targetable reentry vehicles (MIRVs) per missile than the Minuteman III, the only currently deployed MIRVed U.S. ICBM.

PURPOSE AND DESCRIPTION OF THE MX ICBM

The MX will be smaller than the Soviets' largest ICBM, the SS-18, but will have military capability equivalent or superior to the SS-18. MX will be larger than the Minuteman III. Added throw-weight, accuracy, nuclear hardness, and mobility are the chief features of the MX design. It will have a 92-inch-diameter body, three solid-propellant stages, a liquid-fueled post-boost vehicle, and a gimballess Advanced Inertial Reference Sphere (AIRS).

The MX guidance system, the heart and brains of which are AIRS and a microminiaturized computer, will retain its accuracy after being transported and stored horizontally. This feature will contribute to its readiness. The guidance system is installed so that components can be replaced without first removing the reentry vehicle bus as is done on the Minuteman III.

The Air Force is developing ballistic and maneuvering reentry vehicles for the MX through the Advanced Ballistic Reentry Systems (ABRES) Program. Two reentry vehicles (RVs) are under consideration for MX -- the Mk-12A and the advanced ballistic reentry vehicle, with yields estimated at 335 and 500 kilotons, respectively. While MX is expected to carry 10 Mk-12As, "it will be designed to carry twelve MK-12A RVs or eleven Advanced Ballistic Reentry Vehicles should the SALT II limit of ten RVs not be obtained," according to Lt.Gen. Kelly Burke, USAF Deputy Chief of Staff for Research, Development, and Acquisition. In contrast, the Minuteman III carries three Mk-12 RVs of about 170-kiloton yield, though the Mk-12s on 300 of the 550 Minuteman IIIs currently deployed are being replaced with Mk-12As. (See Senate Foreign Relations Committee hearings, "The SALT II Treaty," July 1979, part 1, p. 458; and House Foreign Affairs and Senate Foreign Relations Committees, "Fiscal Year 1982 Arms Control Impact Statements," February 1981, p. 3.) Each MK-12A, combined with the MX's accuracy improvements, will be much more able to destroy hard targets than Minuteman III warheads.

The following table summarizes the estimated general characteristics of the most important U.S. and Soviet ICBMs currently deployed or being deployed, and the dates of their Initial Operational Capability (IOC).

Table 1
ESTIMATED CHARACTERISTICS OF SELECTED U.S. AND SOVIET MIRVed ICBMs

	U.S.		U.S.S.R.		
Designation	MINUTEMAN III	MX	SS-17	SS-18	SS-19
	INS20/Mk12A(a)		mod 1	mod 4	mod 1
IOC	1979	1986	1975	1979	1974
Length(ft)	60	70.6	79?	115	82
Diameter(ft)	5.5	7.7	8?	10	9
Stages	3(b)	3(b)	2	2	2
Weight(lbs)	78,000	192,000	?	?	?
Propellant	solid(b)	solid(b)	liquid	liquid	liquid
Guidance	inertial	inertial	inertial	inertial	inertial
Launching Mode	hot	cold	cold	cold	hot
Basing Mode	silo	TBD	silo	silo	silo
Throw Weight(lbs)	1,975-2,400	7,900	6,025	16,700	7,525
Range(nm)	LT 6,900	6,000-	4,800	4,800	4,300
No. of RVs	3	10(c)	4	10	6
Yield (kt)	335	335/500	750	500	550
CEP(nm)	0.12	0.10/0.05	0.24	0.14	0.21
SSKP(d)	0.64	0.76-0.99	0.35	0.62	0.38
Lethality K/RV (e)	33.5	192.9(f)	14.3	32.1	15.2
Lethality K/DV (e)	100.5	1929.4	57.3	321.4	91.4

Glossary:

MIRVed: carries multiple independently targetable reentry vehicles.
TBD: To be determined.
IOC: initial operational capability.
Throw weight: weight of payload (nuclear weapons, weapon shielding for reentry, penetration aids, etc.) of the missile.
nm: nautical miles (6,080 ft.).
LT: Less than.
RV: reentry vehicle.
Yield: explosive force of a weapon.
kt: kiloton, a measure of yield equal to the explosive force of 1,000 tons of TNT.
CEP: circular error probable, a measure of accuracy; if large numbers of the same type of warhead from the same type of missile were shot at a single point target, the CEP would be the radius of the circle within which half the warheads landed.
SSKP: single shot kill probability.
K: see note (e).
DV: delivery vehicle (e.g., an ICBM).

Notes:

(a) INS-20 is a more accurate inertial navigation system than used on earlier versions of Minuteman III; Mk-12A is a 335-kt RV.
(b) Both Minuteman III and MX have 3 large solid fuel stages that

provide most of each missile's range and throw-weight capability and a liquid fuel post-boost vehicle (PBV) that maneuvers each RV onto an independent trajectory. Because MX's post-boost vehicle is large, MX is often termed a 4-stage missile.

(c) MX is designed to carry 11 advanced ballistic reentry vehicles (500 kt) or 12 Mk-12A RVs (335kt).

(d) Calculated for each warhead listed against a shelter hardened to withstand a nuclear blast overpressure of 2000 pounds per square inch.

(e) Lethality (K) is a measure of ability to destroy hard targets. It is directly proportional to the 2/3 power of yield in megatons (1 megaton = 1000 kilotons) and inversely proportional to the square of CEP in nm.

(f) Calculated for a 335 kt RV with a CEP of .05 nm.

Sources:

The data in this table are from open sources. All data on throw weight, range, yield, and CEP are from John Collins, U.S.-Soviet Military Balance: Concepts and Capabilities, 1960-1980. (McGraw-Hill Publication Co., 1980): 446-447, except the following:

-- 2400-lb throw weight for Minuteman III. Paul Nitze, in U.S. Senate. Committee on Foreign Relations. Hearings: The SALT II Treaty (1979): pt. 1, p. 458.
-- MX throw weight: Aerospace Daily, Feb. 5, 1980: 187.
-- MX range: DMS Market Intelligence Report, "MX," (Greenwich, Ct: 1979): 1.
-- Minuteman III yield: Nitze, The SALT II Treaty: pt. 1, p. 458.
-- MX yield and CEP: Herbert Scoville, Jr., MX: Prescription for Disaster (Cambridge, Mass.: MIT Press, 1981): 16.
-- Minuteman III range: Collins lists a range of about 6,900 nm for Minuteman III armed with MK 12 RVs. Since Mk12A is somewhat heavier than Mk12, the Mk12A-armed Minuteman III's range will be somewhat less than that of the Mk12-armed version.

THE BASING MODE

It is widely believed that the Soviets will be able to destroy 90% or so of U.S. ICBMs in the early 1980s. On Aug. 20, 1980, Defense Secretary Brown said they may already "threaten our fixed Minuteman silos." This anticipated vulnerability arises because the ICBMs are based in fixed silos, and because Soviet ICBM accuracy is increasing. If U.S. ICBMs were made mobile, the threat posed to them by accurate Soviet ICBMs would be reduced. Congress has therefore insisted repeatedly over the past few years that any new U.S. ICBM be based only in a mobile mode.

The United States has considered more than 30 mobile basing modes since the early 1960s. Most fall into two categories: (1) free mobile systems, in which missiles are moved on trains, trucks, aircraft, submarines, etc., over large areas, often hundreds of thousands of square miles, and are not tied to fixed shelters; and (2) multiple protective structure (MPS) systems, in which missiles are shuttled among a large number of shelters.

Citing the strategic difficulties of any type of MPS, President Reagan on Oct. 2, 1981, rejected that system and proposed basing MX in superhard silos (i.e., with high resistance to nuclear weapon effects) initially, and later in a more survivable basing mode. On Dec. 2, the Senate passed, 90-4, an amendment by Senator Cohen to H.R. 4995, the FY82 DOD appropriations bill, that limited the expenditure of funds on superhardening and called for a decision on a permanent MX basing mode by July 1, 1983. The House adopted no such amendment, so the issue now goes to conference. The Administration recognized that silos would not do much to redress vulnerability, but argued:

(1) Superhard silos would create additional uncertainties for Soviet war planners, reducing their confidence that they could destroy most MXs.

(2) Silos are the only way to avoid delaying MX deployment beyond 1986, when MX will become operational. The Administration noted: "Early deployment of MX will break the Soviet monopoly or prompt counter-ICBM capabilities."

(3) Silos are an interim basing mode. The U.S. will conduct R&D on three modes that offer longer term survivability: continuous airborne patrol aircraft, deep underground basing, and antiballistic missile (ABM) defense of MXs. By 1984, the Administration will select one or more of these modes for MX deployment.

Critics respond:

(1) The additional uncertainties created by superhard silos will be minimal. Since the Soviets are improving the accuracy of their ICBMs, they can more than offset any improvement in silo hardening. They can also use several RVs and/or very large

RVs against each silo to improve their chances of destroying silos.

(2) Silo-based MX, with 1,000 counter-ICBM RVs, will be the most attractive U.S. strategic targets; the Soviets will have a huge incentive to concentrate RVs on them. They will be able to do that because there will be no decoy targets; unlike MPS, each silo will contain a missile.

(3) Deploying MX in superhard silos will be very expensive. (See Cost section, below, for details.) Since the U.S. can have confidence that only a few MXs would survive, critics reject silo basing as not cost effective and recommend that the U.S. move directly to a long-term survivable basing mode. By deploying MX in silos, the U.S. gains considerable counterforce capability, but only if it attacks preemptively. Why spend billions, critics ask, for a mission we do not intend to carry out?

Silos and other basing modes are discussed in more detail in CRS Issue Brief 81165, The MX Basing Debate: The Reagan Plan and Alternatives.

MX, SALT, AND ABM

The Administration was quite negative on near-term prospects for ABM. It said:

> ...today, ballistic missile defense technology is not at the stage where it could provide an adequate defense against Soviet missiles. For the future, we are not yet sure how well ballistic missile defenses will work; what they will cost; how Soviet ballistic missile defenses -- which would almost certainly be deployed in response to any U.S. missile defense system -- would affect U.S. and allied offensive capabilities; and what would be the political ramifications of altering the ABM Treaty.

By terminating MPS, the Administration greatly reduced prospects for deploying any U.S. ABM in the near term, barring Soviet ABM deployment. The Low Altitude Defense (LoAD) ABM, the U.S. ABM nearest to deployment, could be deployed as a stand-alone defense only in connection with MPS. It would exploit the leverage offered by MPS, intercepting only the warheads headed for the one of 23 shelters containing missiles.

LoAD is generally through to be ineffective by itself in defending silos because it could be overwhelmed. Instead, the U.S. would need another type of ABM, "layered defense." This would use two tiers, an overlay with long-range interceptor missiles to destroy warheads in space, and an underlay with short-range interceptors like LoAD. The overlay would break up precisely structured attacks, while the underlay would intercept warheads

that leak through.

The overlay, however, is in early stages of development, and would use frontier technology. Yet it must be very good to have any substantial military value. Critics and those involved with ABM development would agree with the Office of Technology Assessment's view that "For the moment, it would be quite risky to rely on the Overlay, or on layered defense, as the basis for MX basing."

In rejecting MPS, then, the Administration greatly reduced: prospects for the only ABM the U.S. could deploy in the next few years; any advantage the U.S. could gain by withdrawing from or seeking to renegotiate the ABM Treaty in the 1982 five-year review of that treaty; and pressure to do that for the next several years at least. See Issue Brief 81003, Antiballistic Missiles.

COST

Regarding FY82 costs, the President's FY82 MX request was amended to $1.950 billion following the Oct. 2 announcement. The FY82 DOD Authorization Act, P.L. 97-86 (S. 815), reduced that figure to $1.8752 billion. Of that latter figure, $1.575 billion is for missile development. The remainder, $300.2 million, is for basing, of which $10 million is for deep underground basing and the rest is for basing MX in hard silos. The conferees agreed that no funds authorized by this act could be used for R&D of an aircraft launching mode for MX.

For FY82 DOD appropriations, the House Appropriations Committee recommended providing $1.913 billion for MX, of which $1.349 billion was for missile R&D, and $564 million was for basing R&D. (H.R. 4995) The House did not change these provisions. The Senate Appropriations Committee recommended appropriating $2.009 billion for MX, of which $1.575 billion was for missile development, $354 million was for planning and design of interim basing, $10 million was for R&D on continuous airborne patrol basing, $10 million was for R&D on deep underground basing, and $60 million was for a 3% inflation add-on. (S. 1857/H.R. 4995) The Senate did not change these amounts. The bill now goes to conference.

Superhardening the silos that will hold MX accounts for only a part of the total cost of silo basing. Much design work is required to put MX in silos, whether or not the silos are superhardened. The Air Force estimates that for FY82, less than 10% of the silo basing funds are for hardening, and across the five-year defense plan less than 20% of those funds are for hardening.

Regarding total MX costs, a preliminary Air Force estimate, as of Oct. 30, 1981, is that R&D and procurement of 226 MX missiles (for deployment, test, and spares) will cost $13.8 billion exclusive of nuclear weapon material (FY82 dollars). The Air Force's preliminary estimate of basing costs as of that date is that 18 Titan silos, modified and superhardened for MX, plus infrastructure (e.g., depot facilities, test equipment, facilities associated with test launches, and maintenance equipment), would cost $6.2 billion; 36 modified Titan silos plus infrastructure would cost $7.8 billion; and 40 modified Minuteman III silos plus infrastructure would cost $5.6 billion (all in FY82 dollars). DOD has provided a detailed breakout of silo basing costs; see Congressional Record, Dec. 2, 1981: S14282. The following table presents

the Air Force estimate of the R&D cost of continuous patrol aircraft and deep underground basing through 1984, and, of the funds scheduled and approved by DOD for the Army to use through 1984 on ballistic missile defense, that part of the funds in direct support of the President's decision on MX basing in 1984.

	Cost (FY82 dollars in millions)			
	FY82	FY83	FY84	Total
Continuous patrol aircraft	10	210	420	640
Deep underground basing	10	100	100	210
Ballistic missile defense	263	672	621	1556
Total	283	982	1141	2406

The ultimate cost of the MX and its basing modes is uncertain, given that the long-term basing options for MX have not been developed, the mode or modes for deployment have not been selected, and the number of missiles to be deployed in each mode has not been determined.

SCHEDULE

The current schedule calls for the first MX flight test in January 1983. The Administration states that MX will be deployed in silos in 1986, and that "we will have a better system" for basing MX by "the late 1980s."

ISSUES

The MX program is highly controversial. Salient issues include its need, cost, warhead lethality, and arms control implications.

Need

Proponents justify the program, as follows:

-- The MX will narrow the U.S./U.S.S.R. ICBM throw-weight asymmetry.

-- The MX is needed as a counterforce weapon capable of destroying reloadable silos basing the cold-launched SS-17s and SS-18s, ICBMs held in reserve, command centers, and other military targets.

-- ICBMs are vulnerable now, or soon will be. The Soviets have been improving ICBM accuracy dramatically and deploying many accurate ICBMs. Silo basing is the only way to avoid delaying MX deployment. It will make Soviet planners less confident in their ability to destroy MX for several years. By the late 1980s, we will deploy MX in a basing mode that affects the prospect of greater survivability for the missile.

Critics respond:

-- The United States currently has many thousands of independently targetable strategic nuclear weapons (about 50% more than the U.S.S.R. has) -- more than enough to target any foreseeable increase in the number of potential strategic targets in the Soviet Union.

-- The hardening of potential Soviet targets can be dealt with by:
(a) deploying MK-12A RVs on Minuteman IIIs;
(b) increasing the navigation accuracy of our ballistic-missile launching submarines through the use of the Global Positioning System; and
(c) deploying the Trident II SLBM and cruise missiles.

-- A limited attack on U.S. ICBMs scarcely seems credible. The U.S. would have SLBMs and bombers surviving, and might launch ICBMs on warning of attack. The Soviets would also be deterred by doubts about the vulnerability of U.S. ICBMs, the immense difficulties of coordinating an attack, and the disaster resulting if the attack fails. In any event, silo basing leaves MX highly vulnerable even if the silos are "superhard." With five years' advance notice, the Soviets will be able to improve ICBM accuracy enough to offset extra hardening.

Cost

Critics argue:

-- For a fraction of the cost of the MX program we could deploy thousands of land-based nuclear-armed cruise missiles in the NATO countries, and balance the Soviet deployment of the SS-20 intermediate range ballistic missiles (IRBMs).

-- A less expensive and more survivable alternative to the MX is to deploy additional nuclear-powered ballistic-missile-launching submarines or the smallsub undersea mobile (SUM) system. The Trident II, when deployed in 1989, will be able to destroy Soviet ICBM silos.

-- Even silo basing will be extremely expensive.

Proponents of the MX system respond:

-- The maintenance, security, and operational costs of the MX

system will not be greater than for other systems of similar complexity.

-- Strategic cruise missiles, although less expensive than MX, are too slow for attacking time-critical targets such a ICBM silos and are too vulnerable to terminal defenses.

-- Although SLBMs currently offer an attractive alternative to the MX in terms of lower initial cost and reduced vulnerability, (a) SLBMs are less reliable and accurate than ICBMs; (b) SLBMs are more expensive to maintain than ICBMs; and (c) if the survivability of the U.S. ICBMs is not improved and the Soviets develop antisubmarine warfare (ASW) techniques that would neutralize the sea-based portion of the U.S. strategic triad we could be placed in a position of strategic inferiority.

-- The expense of constructing alternate basing for our ICBMs will eventually have to be incurred if the U.S. is to reduce the vulnerability of its ICBMs to the Soviet strategic offensive counterforce weapons such as the SS-18s and SS-19s.

-- Silo basing is the only way open to deploy MX as soon as it is available.

Warhead Lethality

Perhaps the most significant strategic controversy regarding MX is the predicted accuracy of its warheads -- a basic ingredient of its lethality. Lethality is a quantitative measurement that denotes the hard-target capability possessed by a nuclear weapon. In the past the Soviets have derived a respectable degree of lethality from their ICBMs by arming them with high-yield warheads (e.g., the SS-9 carries one 20 MT RV. See Collins, John: U.S.-Soviet Military Balance, p. 446.) The new generation of Soviet ICBMs, however, have considerable improvements in accuracy and throw-weight over their predecessors. In contrast, U.S. efforts to increase the lethality of its ICBMs has primarily consisted of accuracy improvements to all of the Minuteman IIIs, and the substitution of some of the MK-12 MIRVs with higher-yield MK-12A MIRVs.

Critics of the high accuracy being designed into the MX argue:

-- The MX is a counterforce weapon for destroying the Soviet ICBM silos, because each of its 10 RVs will have sufficient lethality to crush 3000 psi-hardened targets (the maximum compressive strength of concrete, the parent material of silos, is about 3000 psi) with a kill probability of about 98.2%.

-- The anti-silo capability designed into the MX is inconsistent with the U.S.-proclaimed policy of deterrence by threat of assured-destruction retaliation, because a hard-target counterforce capability is only necessary for supporting preemptive-attack or first-strike postures.

Advocating the superior hard-target capability of the MX, over that to be

possessed by Minuteman III, are those proponents who suggest:

-- With the exception of bomber-deliverable nuclear weapons, the U.S. does not have an adequate and much needed capability for destroying such targets as dams, underground military and industrial depots, super-hardened command and control facilities, and other similarly critical targets in the Soviet Union.

-- We must, following a Soviet ICBM-launched first-strike against our ICBMs, be capable of destroying their residual ICBM forces at their bases while retaining enough of our ICBMs to deter a follow-on attack against our cities.

Arms Control Implications

MX supporters contend:

-- The development and initial deployment of the MX, even in silos, might persuade the Soviets to halt the modernization of their silo-based ICBMs, and concentrate on making their ICBMs invulnerable.

-- A DOD projection of Soviet ICBM characteristics and U.S. ICBM vulnerability shows that a destabilizing counterforce imbalance could result by the mid-1980s if the U.S. does not increase the accuracy and reduce the vulnerability of its ICBMs.

-- The "limited counterforce" strategic doctrine adopted by the U.S. provides an alternative to using strategic forces for a suicidal attack on Soviet cities.

-- If both the U.S. and the U.S.S.R. want strategic nuclear weapons for deterrence only, both should: (a) deploy an equally limited and verifiable number of mobile ICBMs to permit each nation to safeguard the survivability of its ICBMs regardless of the quality improvements made to the other side's missiles, and (b) scrap all other ICBMs as the mobile ICBMs become operational.

-- Deploying MX in a more survivable mode than fixed silos is necessary because silos are vulnerable, and vulnerable missiles cannot deter attack. The ability of ICBMs to destroy even hard targets has been established by meticulous research over decades. No basing mode, however, can provide a high degree of survivability for MX when it is first deployed in 1986. The President's program will obtain survivability by the late 1980s. In the interim, superhard silos will reduce vulnerability somewhat.

Critics argue:

-- The current Soviet strategic initiatives react to U.S. programs such as the deployment of MIRVs, accuracy improvements to Minuteman IIIs, re-arming of Minuteman IIIs with MK-12A MIRVs, and development of cruise

missiles and MX.

-- The Soviets will view MX as permitting a U.S. first strike. They will respond by deploying more SS-17, SS-18, and SS-19 ICBMs than currently projected; increasing the number of MIRVs on their missiles; preparing to launch on warning of attack; and deploying land-mobile ICBMs. These steps will reduce the likelihood of attaining arms control agreements and will increase the likelihood of a Soviet attack.

-- We need not panic over fear of theoretical Minuteman vulnerability. Many technical problems prevent the Soviets from destroying all Minutemen simultaneously. Moreover, simultaneous destruction of all three elements of the triad is impossible because of the way it was designed.

-- A "limited counterforce" response to a Soviet first strike would result in tens of millions of deaths, blurring the distinction between the counterforce and countervalue deterrence.

-- Vulnerable missiles, such as MX in superhard silos, invite attack rather than deter it.

LEGISLATION

P.L. 97-86, S. 815

Department of Defense Authorization Act, 1982. Reported from Senate Armed Services Committee (S.Rept. 97-58) on May 6. Provides that no funds authorized by title II of the bill (R&D) be obligated or expended for full-scale engineering development of an operational basing mode for MX unless and until: (1) the President has submitted his decision to Congress, (2) the Secretary of Defense has justified the decision and compared alternatives, and (3) 60 days have elapsed during which the two Houses "have not agreed to resolutions of their respective Houses expressing disapproval of the President's decision." Senator Levin offered an amendment that modified part 3 of the committee's bill so that no funds would be used unless, within 60 days of submission of the President's decision, both Houses "have agreed to a joint resolution expressing approval of the proposed basing mode." The amendment was tabled, 59-39, on May 13. S. 815 passed the Senate, amended, 92-1, on May 14. Conference completed Oct. 29. The conferees agreed to $1,875 million of the $1,950.2 million in the revised request for MX R&D. Conference report filed in the House (H.Rept. 97-311) Nov. 3. Senate agreed to conference report Nov. 5; House agreed Nov. 17, 335-61. Signed into law Dec. 1, 1981.

H.R. 1955 (Daschle et al.)

Authorizes appropriations for FY82 for Navy RDT&E on the smallsub undersea mobile (SUM) system for launching ICBMs, including MX. Introduced Feb. 19, 1981; referred to the House Armed Services Committee.

H.R. 3455 (Brinkley et al.)

Military Construction Authorization Act, 1982. Reported from House Armed

Services Committee (H.Rept. 97-44) on May 15. Provides that no funds authorized by title 301 of the bill (Air Force construction) for MX be obligated or expended for an MX basing mode other than MPS unless the President certifies that it is in the national interest to develop a basing mode other than MPS, and within 60 days of submission of that decision Congress adopts a concurrent resolution approving the alternative basing mode selected by the President. Representative Simon offered an amendment very similar to the Senate Armed Services Committee's language on MX basing of S. 815. His amendment was agreed to. Representative Marriott offered an amendment to the Simon amendment, having the Secretary of Defense recommend "a plan to mitigate the economic, social and cultural impacts of the selected basing mode on the affected State and local communities, including through the provision of Federal financial assistance," along with the justification of the President's basing mode and the comparison of alternatives. The amendment was agreed to. Measure passed House, amended, June 4, on 311-36 vote. Referred to Senate Armed Services Committee June 8. Senate considered and passed H.R. 3455, amended, Nov. 5, 95-2. Because the Reagan plan for MX basing did not call for MX military construction in FY82, the committee bill deleted the entire $366 million for that purpose. Measure reported from conference (H.Rept. 97-362) Dec. 7.

H.R. 3519 (Price et al.)

Department of Defense Authorization Act, 1982. Reported from House Armed Services Committee (H.Rept. 97-71) on May 19. Section 203 of the bill provides $2,423.2 million for RDT&E on MX based in MPS; stated that development shall continue so as to achieve IOC by Dec. 31, 1986; and provided that MX/MPS funds could be used for a different basing mode, and the IOC waived, if the President certifies that it is in the national interest to develop an MX basing mode other than MPS, and if, within 60 days of certification, Congress adopts a concurrent resolution approving development of the President's alternative basing mode. Representative Hansen offered an amendment to authorize the same sum for MX, with the same IOC, but with the conditions set forth by the Senate version of S. 815: no funds used for a basing mode until (1) the President selects a basing mode, (2) the Secretary of Defense justifies that basing mode and compares alternatives; and (3) 60 days elapse in which both Houses have not adopted resolutions expressing disapproval of developing the President's basing mode. Representative Simon offered an amendment to Hansen's amendment requiring each House to adopt a resolution approving development of the President's basing mode within 60 days of submission of the President's decision. Simon's amendment was defeated, 207-201; Hansen's amendment was accepted by voice vote. Representative Dellums offered an amendment to delete all funds for MX/MPS. After rejecting a motion by Representative Stratton to limit debate, 213-193, the House rejected Dellums' amendment, 316-96. H.R. 3519, amended, passed the House, 354-63, on July 16. The House then passed S. 815 in lieu, amended to contain House language.

H.R. 3954 (Santini et al.)

Authorizes the Secretary of Defense to provide special impact assistance to State and local governments, and other entities, to mitigate adverse impacts on local communities of MX or the East Coast Trident submarine base.

H.R. 4995 (Addabbo)

Department of Defense Appropriations, 1982. Reported from House Appropriations Committee Nov. 16 (H.Rept. 97-333). The committee recommended appropriating the full amount the Air Force budgeted for MX, $1.913 billion, of which $1.349 billion was for R&D on the missile and $564.2 million was for

R&D on basing options. On Nov. 18, the House rejected, 139-264, an Addabbo amendment to delete all R&D funds for MX missile and basing. The bill passed the House, amended, 335-61, on Nov. 18. Measure considered in the Senate Nov. 30-Dec. 4. On Dec. 2, the Senate passed, 90-4, an amendment by Senator Cohen that limited the expenditure of funds on superhardening of silos for MX and called for a decision on a permanent MX basing mode by July 1, 1983. On Dec. 3, the Senate rejected, 35-60, an amendment by Senator Pryor to delete funding for interim silo hardening for MX, and rejected, 46-47, an amendment by Senator Proxmire to delete the 3% cost growth add-on for MX and B-1. Measure passed Senate, amended, 84-5, on Dec. 4.

H.Con.Res. 94 (Bedell et al.)

Expresses the sense of the Congress that MPS be halted until there is a negotiated limit on the number of ICBM launchers and MIRVs that the Soviets may have deployed at any time. Introduced Mar. 17, 1981; referred to the House Armed Services Committee.

S. 1408 (Thurmond)

Military Construction Authorization Act, 1982. Reported from Senate Armed Services Committee (S.Rept. 97-141) June 22. The Committee recommended authorizing the requested funding, $366 million, but prohibited the use of these funds until the Administration completed its review of MX basing and Congress has 60 days for reviewing the Administration's basing decision. Measure indefinitely postponed in Senate Nov. 5, with H.R. 3455 passed in lieu.

S. 1857 (Hatfield)

Department of Defense Appropriations, 1982. Reported from the Senate Appropriations Committee (S.Rept. 97-273) Nov. 17. Recommended appropriating $2,008,706,000 for MX R&D, of which $1.575 billion is for R&D on the missile, $354 million is for R&D on planning and design for interim silo basing, $10 million is for R&D on continuous airborne patrol basing, and $10 million is for R&D on deep underground basing. The latter two are long-term basing options. The total also includes 3% for cost growth.

S.Res. 241 (Levin et al.)

Disapproves the basing mode for MX announced by the President on Oct. Introduced Nov. 5; referred to the Senate Committee on Armed Services.

See Defense Budget -- FY82 (IB81002).

HEARINGS

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1980. Part 5, pp. 137-564.
Topics include: U.S. strategic policy and MX; environmental, community, and economic impact of MX; MX construction program; intergovernmental aspects of MX.

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Hearings held Oct. 1979 and Jan., Feb., and June 1980.
"Serial 96-30."

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Hearings held May 6-7, 1980.

U.S. Congress. Senate. Committee on Armed Services. Department of Defense authorization for appropriations for fiscal year 1981. Hearings, 96th Congress, 1st session. Part 4. Washington, U.S. Govt. Print. Off. 1980. p. 2611-2665.

U.S. Congress. Senate. Committee on Foreign Relations. Strategic weapons proposals. Hearings, 97th Congress, 1st session. Washington, U.S. Govt. Print. Off., 1981 197 p.
Hearings held Nov. 3, 4, and 9, 1981.

REPORTS AND CONGRESSIONAL DOCUMENTS

U.S. Congress. House. Committee on Foreign Affairs./ Senate. Committee on Foreign Relations. Fiscal year 1982 arms control impact statements. Statements submitted to the Congress by the President pursuant to section 36 of the Arms Control and Disarmament Act. Washington: U.S. Govt. Print. Off. 1981. ICBM programs, p. 1-71.
At head of title: 97th Congress, 1st session. Joint committee print.

OTHER CONGRESSIONAL ACTION

N/A

CHRONOLOGY OF EVENTS

12/03/81 -- The Senate rejected, 35-60, an amendment by Sen. Pryor to delete funding for interim silo hardening for MX, and rejected,

46-47, an amendment by Sen. Proxmire to delete a 3% cost

growth add-on for MX and B-1. Both amendments were offered to H.R. 4995, FY82 DOD appropriations.

12/02/81 -- The Senate adopted, 90-4, an amendment by Sen. Cohen to H.R. 4995, FY82 DOD appropriations, to limit the expenditure of funds for superhardening of silos for MX and to call for a decision on a permanent basing mode for MX by July 1, 1983.

11/18/81 -- The House rejected, 139-264, an amendment by Rep. Addabbo to delete all FY82 R&D funds for MX from H.R. 4995, FY82 DOD appropriations.

11/16/81 -- The House Appropriations Committee voted 25-23 to approve $1.9 billion for MX for FY82.

10/28/81 -- The House Appropriations Committee's Defense Appropriations Subcommittee voted 7-5 not to approve any funds for MX for FY82.

10/02/81 -- The President announced his strategic program. He rejected the multiple protective structures (MPS) basing of MX. Instead, he recommended basing MX initially in superhard silos as an interim measure, beginning in 1986. The U.S. would also study three basing modes that offer the prospect of long-term survivability for MX: ABM defense, continuous airborne patrol, and deep underground basing. By 1984, one or more of these modes for deployment would be selected.

03/15/81 -- Secretary Weinberger named a panel of 15 non-governmental experts to study how to base the MX.

02/03/81 -- In a press conference, Secretary of Defense Weinberger said that he was examining alternative basing modes for MX for fear that lawsuits would "slow down and ultimately even stop" its deployment in Nevada and Utah.

12/18/80 -- The Air Force released a draft environmental impact statement (EIS), Deployment Area Selection and Land Withdrawal/Acquisition. This is the third in a series of EISs on MX.

08/20/80 -- Secretary of Defense Harold Brown, in a speech on U.S. strategic nuclear policy, declared: "in the future, Soviet military programs could, at least in theory, threaten the survivability of each component of our strategic forces. For our ICBMs, that potential has been realized, or close to it."

06/16/80 -- Governor Matheson of Utah stated, "I cannot support deploying the MX missile system in Nevada/Utah in the proposed horizontal multiple protective structure mode."

04/29/80, 05/06/80 -- Defense Secretary Brown and Under Secretary of Defense Perry indicated that the basing mode proposed for MX has been modified. The new system

will use linear roads, separate transporter and erector-launcher vehicles, "loading dock" shelters, and mass simulators.

09/07/79 -- President Carter announced his plan to deploy MX in the so-called "racetrack" system of shell-game multiple protective structures.

01/17/77 -- Donald Rumsfeld, Secretary of Defense under the Ford Administration, stated in his FY78 DOD Annual Report that "the primary basing concepts, at this time, consist of concealing mobile (MX) missiles in either underground trenches or hardened shelters" -- i.e., some form of multiple protective shelters.

For earlier chronology, contact the CRS Issue Briefs Distribution Center.

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